

REMARKS

Claims 1, 3-6, 9-28, 30-35, 37 and 47-56 are pending in this application. Claims 20-28, 30-35, 37 and 47-56 are withdrawn from consideration. By this Amendment, claims 1 and 20 are amended to incorporate the subject matter of dependent claim 7. Claims 10, 12, 14, 26, 28 and 35 are amended for antecedence. Claim 30 is amended for dependency. Claims 7, 8, 29, 36, 38-46, 57 and 58 are canceled. No new matter is added by this amendment.

The courtesies extended to Applicants' representative by Examiner Miller at the interview held September 2, 2009, are appreciated. The reasons presented at the interview as warranting favorable action are incorporated into the remarks below, which constitute Applicants' record of the interview.

I. Rejection Under 35 U.S.C. §103(a)

The Office Action rejects claims 1, 3-19, and 57-58 under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 6,472,705 ("Bethune") in view of U.S. Patent No. 6,031,711 ("Tennent"). Applicants respectfully traverse this rejection.

Applicants have amended claim 1 to recite an electronic device comprising a transporting layer comprised of a carbon nanotube structure comprising a plurality of carbon nanotubes and cross-linked sites on the carbon nanotubes, the carbon nanotube structure formed by functional groups of the carbon nanotubes bonded to each other by cross-linked sites comprised of at least one chemical bond selected from the group consisting of -COO(CH₂)₂OCO-, -COOCH₂CHOHCH₂OCO-, -COOCH₂CH(OCO-)CH₂OH-, COOCH₂CH(OCO-)CH₂OCO-, and -COO-C₆H₄-COO-, wherein the cross-linked sites connect the carbon nanotubes with each other by chemical bonding between the different carbon nanotubes, the transporting layer transporting a carrier when a voltage is applied to the electrodes.

The Patent Office alleges that the insulating layer of Bethune is considered to be a transporting layer, such as the transporting layer recited in claim 1. See Office Action, section 3. Applicants respectfully disagree.

Bethune describes a field effect transistor having fullerenes acting as electron receivers in the insulating layer. Bethune, Abstract, and column 6, lines 57-60. The insulating layer of Bethune receives and stores electrons. See Bethune, column 6, lines 57-62. In contrast, a transporting layer is (1) connected to both a source electrode and a drain electrode, and (2) functions to transport a carrier (such as a hole or an electron) between the source and drain electrodes. See specification, page 7, lines 5-6 and page 33, lines 21-24. The insulating layer of Bethune thus does not transport electrons, but stores them. For this reason, the insulating layer of Bethune is not a transporting layer, and thus, Bethune fails to describe an electronic device as recited in claim 1.

Applicants respectfully submit that Tennent fails to remedy the deficiencies of Bethune, at least because one of ordinary skill in the art would not have had any reason or rationale to have combined the teachings of Bethune and Tennent because the references are non-analogous art.

Bethune describes a field effect transistor having fullerenes acting as electron receivers in the insulating layer. Bethune, Abstract, and column 6, lines 57-60. Conversely, Tennent describes a capacitor having electrodes comprised of graphitic nanofibers. Tennent, column 1, lines 10-12. Because Bethune and Tennent describe different electronic devices (a transistor as opposed to a capacitor) comprised of different materials (fullerenes as opposed to graphitic nanofibers), one of ordinary skill in the art would not have had any reason or rationale to have attempted to include the nanofibers of Tennent in the insulating layer of the transistor of Bethune with any reasonable expectation of success.

Additionally, Bethune teaches away from the carbon structure of Tennent. Bethune requires fullerenes that do not have dangling bonds on the molecular surfaces thereof (see Bethune, column 5, lines 45-47), whereas Tennent describes functionalized nanofibers having modified surfaces including functional chemical moieties (see Tennent, column 15, lines 46-50). As such, Bethune specifically teaches away from carbon structures having functional external bonds, such as the functionalized nanofibers of Tennent. Therefore, one of ordinary skill in the art would not have had any reason or rationale to have attempted to include the nanofibers of Tennent in the field effect transistor of Bethune.

Finally, even if one of ordinary skill in the art were to have attempted to incorporate the nanofibers of Tennent into the field effect transistor of Bethune, they still would not have achieved the electronic device of claim 1. As discussed above, Bethune describes an insulating layer having fullerenes, and Tennent describes a capacitor having electrodes comprised of graphitic nanofibers. As such, both Bethune and Tennent fail to describe a transporting layer comprised of a carbon nanotube structure, and, thus, even if one of ordinary skill in the art were to have attempted to include the nanofibers of Tennent into the field effect transistor of Bethune, the combination would result in an electronic device comprising an insulating layer and not the transporting layer comprised of a carbon nanotube structure, as recited in claim 1.

Therefore, for at least the reasons discussed above, Bethune and Tennent, whether taken independently or together, fail to render obvious claims 1, 3-6, and 9-19. Withdrawal of the rejection is respectfully requested.

II. Rejoinder Of Withdrawn Claims

Applicants respectfully submit that claims 1, 3-6, and 9-19 are in condition for allowance for at least the reasons discussed above, and therefore Applicants respectfully request rejoinder and consideration of withdrawn claims 20-28, 30-35, 37 and 47-56. MPEP

§821.04 states that claims eligible for rejoinder must depend from or require all the limitations of an allowable claim. Claims 20-28, 30-35, 37 and 47-56, drawn to methods of manufacturing an electronic device require all the limitations of independent claim 1, and therefore are eligible for rejoinder under MPEP §821.04. Accordingly, rejoinder of claims 20-28, 30-35, 37 and 47-56 is respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 3-6, 9-28, 30-35, 37 and 47-56 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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